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FORM PTO-1390 (REV. 1-2000)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 52790-00005
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 10/018945

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP00/05557	June 16, 2000	June 18, 1999

TITLE OF INVENTION
METHOD FOR PRODUCING A CORRUGATED TUBE HAVING A SLITTED OPENING THAT EXTENDS ALONG A GENERATING LINE

APPLICANT(S) FOR DO/EO/US
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Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. X This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. __ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. X This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. X A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. X A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. X is transmitted herewith (required only if not transmitted by the International Bureau).
   b. __ has been transmitted by the International Bureau.
   c. __ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. X A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. __ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. __ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. __ have been transmitted by the International Bureau.
   c. __ have not been made; however, the time limit for making such amendments has NOT expired.
   d. __ have not been made and will not be made.
8. __ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. X An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (UNSIGNED)
10. x An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. __ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. __ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. __ A FIRST preliminary amendment.
14. __ A SECOND or SUBSEQUENT preliminary amendment.
15. __ A substitute specification.
16. __ A change of power of attorney and/or address letter.
17. __ A computer-readable form of the sequence listing in accordance with PCT Rule 13.2 and 35 U.S.C. 1.821 - 1.825.
18. __ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. __ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. x Other items or information:

COPY OF TRANSLATION OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT INTO ENGLISH; AND CONFIRMATION POSTCARD.

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17. X The following fees are submitted:	CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)):	890.00	
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1,000.00**		
International preliminary examination fee NOT paid to USPTO but International Search Report prepared by the EPO or JPO **$860.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search fee (37 CFR 1.445(a)(2)) paid to USPTO **$710.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**		
International preliminary examination fee (37CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 890	
Surcharge of **$130.00** for furnishing the oath or declaration later than ___ 20 ___ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).		

Claims	Number Filed	Number Extra	Rate		
Total Claims	9 - 20 =	0	x **$18.00**	$ 0	
Independent Claims	2 - 3 =	0	x **$84.00**	$ 0	
Multiple dependent claims(s) (if applicable)			+ **$280.00**	$ 280.00	
TOTAL OF ABOVE CALCULATIONS =				$ 280.00	
Reduction by ½ for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				$	
SUBTOTAL =				$ 1170.00	
Processing fee of **$130.00** for furnishing the English translation later the ___20 ___30 months from the earliest claimed priority date (37 CFR 1.492(f)).				$	
TOTAL NATIONAL FEE =				$ 1170.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$	
TOTAL FEES ENCLOSED =				$ 1170.00	
				Amount to be: refunded	$
				charged	$

a. X A check in the amount of $ 1170.00 to cover the above fees is enclosed.
b. ___ Please charge my Deposit Account No. 10-0447 in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.
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NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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38,053
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Certified translation into English

Attorney's Ref.: Pat 2029/24-PCT

Date: June 16, 2000

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Method for producing a corrugated tube having a slitted opening that extends along a generating line

The present invention relates to a method for producing a plastic, dimensionally stable corrugated tube which is provided, in particular, for protectively enclosing electrical lines and which comprises a slitted opening that extends along a generating line.

Such corrugated tubes, in particular plastic tubes, are known and used, in particular, in automobile construction for protectively enclosing electrical lines. The longitudinal slit, or the slitted opening formed by it, which is provided in such corrugated tubes, serves to insert the cables to be protected, usually in the form of a cable bundle or cable harness, in the corrugated tube.

The prior art discloses the most diverse suggestions of how to provide the borders of the slitted opening in corrugated tubes of this type such that, once the cables have been inserted, the borders can be manually contacted with each other to form a closure, which may also be opened again, if required, be it with or without the help of a tool.

Depending on the design of the borders of the slits or on the respective forms of closure of the longitudinal slits, the closing of such tubes requires more, or less, time in addition to

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the fact that the design of the borders of the longitudinal slits is more or less complicated.

Thus, it is known, for example, to deform the two borders of the slit of the corrugated tube, which form the opening, such that they form a releasable closure together. Such deformation of the borders may be of the most diverse shapes, e.g. in the manner of a known zip fastener or also in the manner of a Velcro closer or a hook closure. This has the disadvantage that, upon insertion of the cable harness in the corrugated tube, care must be taken to displace the borders of the slit in the corrugated tube or to position them relative to each other in such a way that the deformations combine to form a solid connection. Thus, the releasable closure according to DE 196 41 421 A1 may be provided by the two deformed borders overlapping, the deformations each being radially extending protrusions formed on said borders and engageable with each other. In an embodiment of this type, it is difficult to re-open the longitudinal slit.

Compared with such deformations, which are each provided spaced apart from each other in the longitudinal direction of the slit, the borders of the slit of a corrugated tube may also be designed as uniform deformations provided continuously over the length of the slit, as described, for example, in DE 197 47 623 A1. These continuous borders of the slit form the closures of the slit, which engage with each other, said closures being approached to each other and engaged with each other by laterally compressing the corrugated tube. By compressing said continuous closures again, they may be disengaged or released from each other, allowing the slit of the corrugated tube to be opened again.

It is also known, from DE 197 05 761 A1, to provide the corrugated tube, in the region of the slit extending along a generating line, with an overlapping portion, in which the corrugated peaks and/or corrugated troughs of the corrugated portions are smaller than in the remaining corrugated tube area, so that they are engageable, in an overlapping relation, with the corrugated peaks and corrugated troughs of the opposite border on the longitudinal slit.

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Such an overlapping portion is also shown in DE 197 00 916 A1, wherein the overlapping portions, which are each provided to the left and to the right of the slit and overlie each other in the closed condition of the corrugated tube, have different wall thicknesses. Further, the respective overlapping portions are characterized by a relatively complicated geometry, i.e. one which also requires a complicated design of the tool for producing the corrugated tube shape in this overlapping portion. This document further discloses that the corrugated tube, after a slit has been formed in the corresponding overlapping portion, is compressed such that the individual overlapping portions slide over one another, and a closure is produced.

All of these previously described and known embodiments of the borders of the longitudinal slit are produced in a costly manner and often cause difficulties in producing such a plastic corrugated tube, i.e. in particular in an extrusion process, if different wall thicknesses in partial areas of the tube periphery and/or undercuts are envisaged.

Therefore, it is an object of the invention that the afore-described method for producing a corrugated tube having a longitudinal slit be improved such that it is easily carried out and that the corrugated tube, after it has been opened and the cable harness has been inserted, may be closed again in a most simple and, consequently, most rapid manner, and remains closed even if the corrugated tube is laid in curves or bends, but, if required, may also be opened in some segments, e.g. in order to repair a damaged cable segment.

In a method as described above, this object is achieved by cutting open the corrugated tube along one of any of its generating lines in a subsequent cutting device, after the tube has been extruded and provided with corrugated peaks and corrugated troughs inside a corrugator, whereby the cut is made at a uniformly ascending or descending angle, which is located at the corrugated tube between a radius of the corrugated tube or a tangent in terms of its inclination, namely as an oblique cut, and the cut-open corrugated tube is then passed through a deformation device following the cutting device and compressed therein, whereby

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the borders of the slitted opening slip over one another, and finally, after the corrugated tube has cooled off, the border of the slitted opening lying on the inside is guided outward and is laid over the other border that was previously laid on the outside.

In connection with the above-described previous efforts to provide corrugated tubes with such longitudinal slits, which are closed by their two borders, after insertion of the electrical cables, by means of special closures provided on them, but which may also be opened again, it has been found that a special and very costly design of the borders of the longitudinal slits comprising special closures can be omitted, if the longitudinal slit is not provided radially, as in all previously known corrugated tubes, but, as described above, is an oblique cut made at a certain angle, which lies between a radial cut on the one hand and a tangent touching the tube, on the other hand. Since the corrugated tube, due to the dimensional stability of the plastic material, has a restoring force even in the slitted condition, the longitudinal slit closes again even after insertion of the cables in the corrugated tube. However, when a radially extending longitudinal slit is formed without disposing closures specially provided on the borders of the longitudinal slit, the known corrugated tubes run the risk that the longitudinal slit may open at these segments, when an accordingly slitted corrugated tube is laid in curves or bends, and the inserted cables may then protrude from the slitted portion.

However, providing the slit according to the above-described invention prevents such complete opening of a longitudinally slitted corrugated tube, in particular in curved areas, so that the inserted cables cannot protrude therefrom. Thus, by making an oblique cut, it is achieved that, when the slit widens, of course, if laid in curves and bends, and the borders of the corrugated tube forming the slit move away from each other, the cables are still prevented from protruding because the still overlapping, obliquely cut areas of the corrugated peaks and corrugated troughs still overlie each other, even if they become further spaced apart by laying the corrugated tube in arches and bends. Consequently, the flatter the cut is made, the further the borders of the longitudinal slit can be spaced apart, without allowing the inserted cables to protrude from the slitted corrugated tube, in particular in the curved and arcuate areas.

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Although compression of the corrugated tube results in a minimal reduction of the diameter of the corrugated tube, the borders of the slit overlap very far. Thus, the above-described advantage is achieved, namely that the slit may well open, in particular in curved areas, without allowing the electrical cables inserted therein to protrude from the corrugated tube through the slitted area.

By cooling off the corrugated tube, the plastic material of which the corrugated tube is made is finally provided with its particular elastic and flexible properties, so that it then also has the property of constantly maintaining this dimensional stability imparted to it by the above-described manufacturing process, i.e. of returning to its initial shape even when its longitudinally slitted portion is deformed. This previously described measure according to the invention, i.e. the reversal of the overlapping borders from their first position to a second, reversed position, imparts to the corrugated tube a relatively strong closing force, or a corresponding closing ability and adherence, which is preserved even if the corrugated tube has to be re-opened after insertion of the cable harness, for example in order to repair a cable segment. This strong closing force causes the corrugated peaks and corrugated troughs of the respectively overlapping borders of the longitudinal slit to closely engage each other, thus resulting in a very smooth transition area both on the inside and on the outside of the slitted corrugated tube in this segment of the slit.

The above-described invention, and in particular its unexpectedly found effects, are advantageous over the slitted corrugated tube of the prior art because they can be achieved with corrugated tubes which need not be deformed in the generating portion, in which the radially extending, longitudinal cut is later provided. Thus, in a corrugated tube manufactured according to the invention, the special deformation of the border portions of the longitudinal slit to closures and even the additional provision of further closures additionally required in some cases, both of which are disadvantageous particularly in terms of cost and time, are eliminated.

Further, the above object of the invention is also achieved by a plastic, dimensionally stable corrugated tube which is provided, in particular, for protectively enclosing electrical lines and which comprises a slitted opening that extends along a generating line, wherein the slitted opening is formed, after extrusion and after being provided with corrugated peaks and corrugated troughs along one of any of its generating lines, at a uniformly ascending or descending angle, which is located at the corrugated tube between a radius of the corrugated

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tube or a tangent in terms of its inclination, namely provided as a linear, oblique cut, and the cut-open corrugated tube is compressed such that the borders and of the slitted opening slip over one another, and finally, the border of the slitted opening lying on the inside is guided outward and is laid over the other border that was previously located on the outside.

In a further embodiment of the invention, a protrusion is provided in the above-described corrugated tube, on the side of the border which was previously disposed on the inside, said protrusion extending radially inwardly and parallel to the opening at at distance from the slitted opening.

If existing, such a protrusion, extending parallel to the slit, provides the corrugated tube with a certain rigidity, which, on the one hand, does not prevent the corrugated tube from being laid in curved areas, but, on the other hand, limits the ability of the corrugated tube of being compressed, thus preventing the corrugated tube from collapsing and, where it is connected to manifold pieces, also imparting to it a higher resistance to being pulled out of the manifold piece in their connecting areas.

In a further advantageous embodiment, the protrusion is provided as a ditch- or groove-shaped indentation of the corrugated tube wall.
Such an embodiment of the protrusion increases the desired rigidity of the corrugated tube and stabilizes the closing position of the overlapping borders of the corrugated tube.

Advantageously, the ditch- or groove-shaped indentation also has the undulating profile of the corrugated tube wall.

According to the invention, the edge of the other border, which was previously located on the outside, contacts the protrusion lying opposite this border.
Thus, the relatively sharp edge of the border of the corrugated tube lying on the inside is prevented from damaging the electrical lines to be inserted in the corrugated tube.

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The above-described invention will now be described in more detail, by way of example, with reference to preferred embodiments and to the drawings described hereinafter, wherein:

Fig. 1 is a view of a segment of an unslitted corrugated tube having corrugated peaks and corrugated troughs, which shows respective cuts A-A and B-B through a corrugated peak and a corrugated trough, respectively,

Fig. 2 is a view of a segment of a corrugated tube having corrugated peaks and corrugated troughs, which shows respective cuts A-A and B-B through a corrugated peak and a corrugated trough, respectively, wherein the corrugated tube is provided with an oblique cut,

Fig. 3 is a view of a segment of a corrugated tube having corrugated peaks and corrugated troughs, which shows respective cuts A-A and B-B through a corrugated peak and a corrugated trough, respectively, and the slitted corrugated tube, which is provided with an oblique cut, is shown upon exiting from a deformation device following the cutting device and having overlapping slit borders,

Fig. 4 is a view of a segment of a corrugated tube having corrugated peaks and corrugated troughs, which shows respective cuts A-A and B-B through a corrugated peak and a corrugated trough, respectively, after the inner border, which was previously located underneath the other border, has been overlapped onto the outside and over the other border, which was previously located on the outside, with the now reversely overlapping borders of the longitudinal slit being pressed into one another with their corrugated peaks and corrugated troughs, and

Fig. 5 is a view of a segment of a corrugated tube having corrugated peaks and corrugated troughs, which shows respective cuts A-A and B-B through a corrugated peak and a corrugated trough, respectively, according to Fig. 4, but with a protrusion being additionally provided on the side of the border now lying on the outside, which protrusion, being spaced apart from the slitted opening, extends radially inwardly and parallel to the opening.

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The corrugated tube 1 shown in the Figures is made of plastics and comprises corrugated peaks 2 and corrugated troughs 3 disposed at certain intervals along its length. The plastic material used to produce such corrugated tubes is selected by the person skilled in the art so as to impart to the corrugated tube the elasticity and flexibility appropriate to the required dimensional stability, in order to allow it, on the one hand, to be laid and held in a stable longitudinal direction, and on the other hand, to be laid around curves and bends, with the slitted corrugated tube returning to its original, initial shape upon being opened for insertion of the electrical cables, so that the respective borders of the slit contact each other again.

The corrugated tube shown in Fig. 1, which is passed out of an injection molding device and through a corrugator, is provided with an oblique cut 4, as shown in Fig. 2, in a cutting device disposed subsequently to the corrugator, wherein the slit 4, which extends along an angular position situated between a radial cut and a tangent, presents itself as shown in the side view of Fig. 2. As can be seen from these drawings, the inclination of the oblique slit 4 is not unlimitedly selectable, but only up to a tangential position at the interior wall portion formed by the corrugated troughs in the interior space of the corrugated tube.

This thus-slitted tube is then passed through a deformation device located subsequent to the cutting device and also not shown in the Figures, wherein the diameter of the corrugated tube, which has a certain diameter and is slitted as shown in Fig. 2, is reduced by sliding the borders 5 and 6 of the longitudinal slit 4 over one another as represented by the respective sections A-A and B-B in Fig. 3. It is obvious that this compression of the corrugated tube, which is still warm during this deformation operation, causes the borders 5 and 6 of the longitudinal slit 4 of the corrugated tube 1 to slide further over each other, i.e. the protrusion of electrical cables inserted in such a corrugated tube is made even more difficult.

The corrugated tube, having been deformed and slitted in this manner, then cools off so that the plastic material from which the corrugated tube is made obtains its final elastic and flexible property, but in particular its dimensional stability. This means that the corrugated tube tends to remain in its shape as shown in Fig. 3, and if it is deformed from its

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predetermined shape, it automatically returns to this predetermined shape immediately upon being released.

However, this corrugated tube is not yet ready for its actual purpose, namely to protect the electrical cables inserted or to be inserted in it from being damaged, because, in particular, the border 5 of the longitudinal slit, which extends into the interior of the corrugated tube, may damage these electrical cables. Therefore, it is envisaged that the border 6 of the longitudinal slit, which is on the outside in Fig. 3, may be folded inside in a further process step, for example in a further processing device, possibly also manually, for example when inserting the electrical lines in such a corrugated tube. To this end, the border 5, which is still located on the inside, is pulled or taken out and laid on the border 6, which was previously on the outside, as indicated by the sections A-A and B-B in Fig. 4. During this processing of the slitted corrugated tube 1, the diameter of the corrugated tube is enlarged again, and the thus-deformed corrugated tube tends to return to its previous smaller diameter due to its dimensional stability. As a consequence of this tendency, the corrugated troughs and corrugated peaks, as shown in Fig. 4, are strongly pressed into each other, so that a relatively smooth closure of the longitudinal slit 4 is formed, and the risk of damaging the electrical cables inserted therein, is eliminated, in particular in the interior of the tube.

The closure of the longitudinal slit 4 shown in Fig. 4 has excellent closing properties inherent to the corrugated tube 1, which prevent the electrical cables enclosed by the corrugated tube 1 from protruding, even in case this corrugated tube is laid in a small bend or in a very narrow curve and the borders 5 and 6 of the longitudinal slit 4 are moved some distance apart.

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Finally, Fig. 5 shows a corrugated tube according to the embodiment represented in Fig. 4, wherein, however, a protrusion 7, which is spaced apart from the slitted opening 4 and extends radially inwardly and parallel to the opening 4, is additionally provided on the side of the border 5, which was previously on the inside. This protrusion 7 could simply be provided in the form of a longitudinally extending ridge, but is advantageously designed as a ditch- or groove-shaped indentation 8 in the wall of the corrugated tube 1, as shown in Fig. 6. Thus, such a longitudinally extending indentation of the wall of the corrugated tube imparts a certain inherent rigidity and further forms an abutment for the sharp edge 9 of the border 6 of the slit 4. This abutment prevents the corrugated tube from collapsing or from being too strongly compressed. The sliding of the overlapping borders 5 and 6 of the slit 4 of the corrugated tube over each other is thus limited, and the stability of the corrugated tube in the connecting areas with manifold and connecting pieces is also increased, and in particular, a higher resistance of the corrugated tube to sliding out of such manifold pieces is achieved. Thus, the ends of such corrugated tubes are prevented, in particular, from being inadvertently pulled out or from inadvertently dropping out of such manifold pieces or connections.

The protrusion 7 and the contact of the edge 9 of the border 6 of the slit 4 also have the effect that the sharp edge 9 cannot damage the electrical cables inserted in the corrugated tube.

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Claims

1) A method for producing a plastic, dimensionally stable corrugated tube (1) which is provided, in particular, for protectively enclosing electrical lines and which comprises a slitted opening (4) that extends along a generating line, characterized in that the corrugated tube (1), after it has been extruded and provided with corrugated peaks (2) and corrugated troughs (3) inside a corrugator, is cut open along one of any of its generating lines in a subsequent cutting device, whereby the cut is made at a uniformly ascending or descending angle, which is located at the corrugated tube between a radius of the corrugated tube or a tangent in terms of its inclination, namely as an oblique cut, and the cut-open corrugated tube (1) is then passed through a deformation device subsequent to the cutting device and compressed therein, whereby the borders (5) and (6) of the slitted opening (4) slip over one another, and finally, after the corrugated tube (1) has cooled off, the border (5) of slitted opening (4) lying on the inside is guided outward and is laid over the other border (6) that was previously located on the outside.

2) A plastic, dimensionally stable corrugated tube (1) which is provided, in particular, for protectively enclosing electrical lines and which comprises a slitted opening (4) that extends along a generating line, characterized in that the slitted opening (4) is formed, after extrusion and after being provided with corrugated peaks (2) and corrugated troughs (3) along one of any of its generating lines, at a uniformly ascending or descending angle, which is located at the corrugated tube between a radius of the corrugated tube or a tangent in terms of its inclination, namely as a linear, oblique cut, and the cut-open corrugated tube (1) is compressed such that the borders (5) and (6) of the slitted opening (4) slip over one another, and finally, the border (5) of slitted opening (4) lying on the inside is guided outward and is laid over the other border (6) that was previously located on the outside.

3) A corrugated tube as claimed in Claim 2, characterized in that a protrusion (7), which is turned radially inward and extends parallel to the opening (4), is provided, spaced apart from the slitted opening (4), on the side of the border (5), which was previously positioned on the inside.

4) A corrugated tube as claimed in Claim 3, characterized in that said protrusion (7) is provided in the form of a ditch- or groove-shaped indentation (8) of the wall of the

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corrugated tube (1).

5) A corrugated tube as claimed in Claim 4, characterized in that the ditch- or groove-shaped indentation (8) also has the undulating profile of the wall of the corrugated tube (1).

6) A corrugated tube as claimed in any of Claims 2 to 5, characterized in that the other border (6), which was previously positioned on the outside, abuts against the protrusion (7) opposite the border (6) with its edge (9).

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Attorney's Ref.: Pat 2029/24-PCT

Date: June 16, 2001

Abstract

A method is proposed for producing a plastic, dimensionally stable corrugated tube which is provided, in particular, for protectively enclosing electrical lines and which comprises a slitted opening that extends along a generating line, wherein the corrugated tube, after it has been extruded and provided with corrugated peaks and corrugated troughs inside a corrugator, is cut open along one of any of its generating lines, wherein the cut is not a radial cut, but is made with an angle that deviates therefrom or is made with a sequence of successive angles of this type, the corrugated tube is then compressed, whereby the borders of the slitted opening slip over one another, and finally, after the corrugated tube has cooled off completely, the border of the slitted opening lying on the inside is guided outward and is laid over the other border that was previously laid on the outside.

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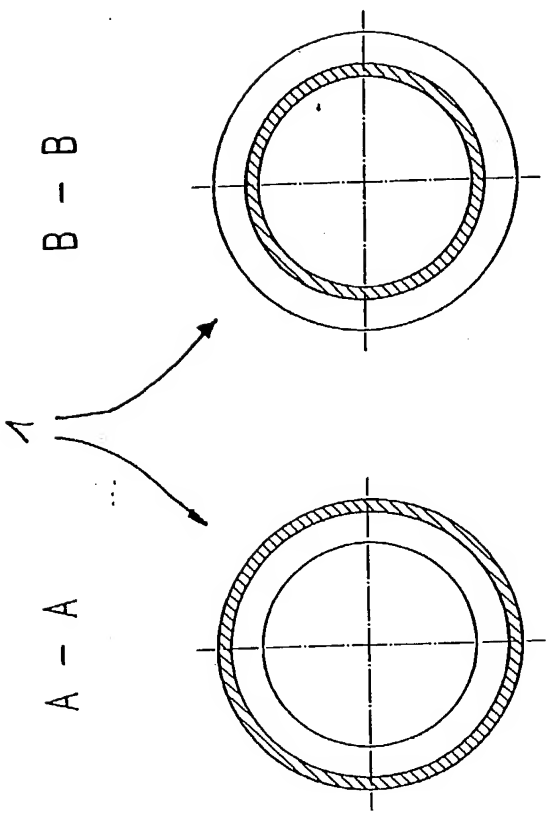
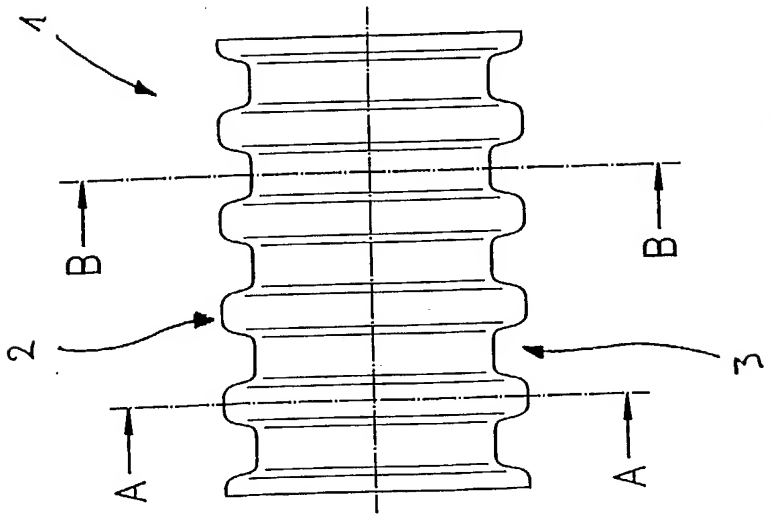


FIG. 1



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Öffentlich bestellter und beeidigter Übersetzer für die englische Sprache
Andreas Roth
Säbener Straße 9
81547 München

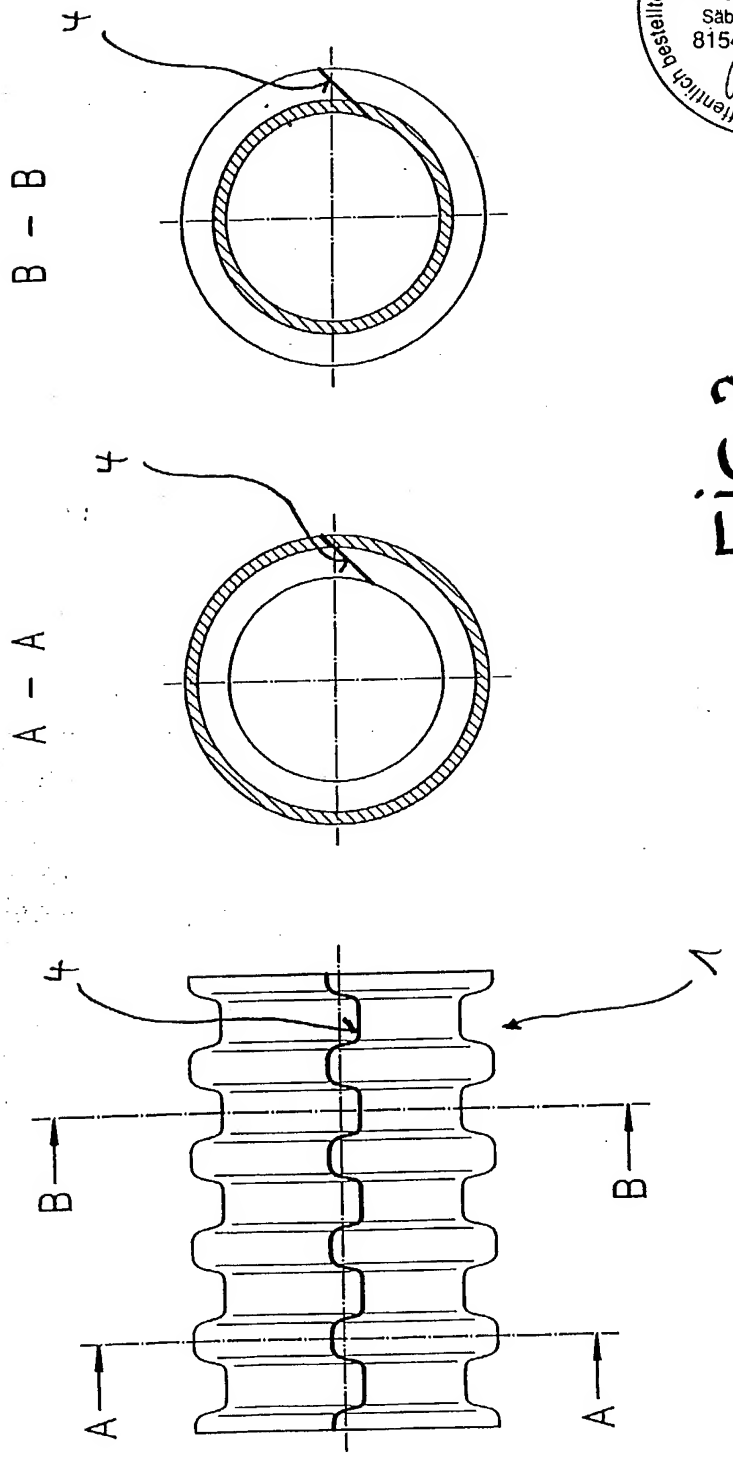

FIG. 2

Öffentlich bestellter und beeidigter Übersetzer für die englische Sprache
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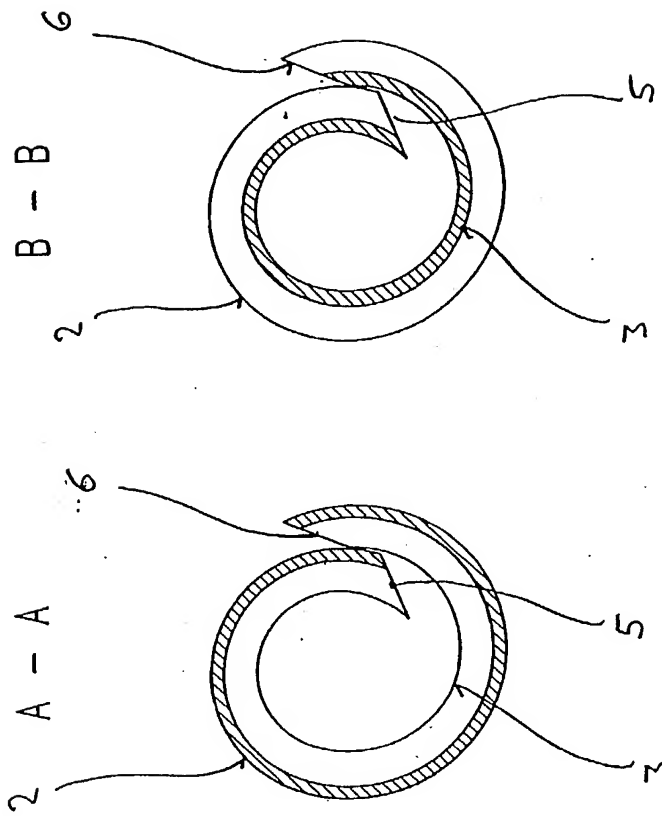

FIG. 3

Öffentlich bestellter und beeidigter Übersetzer für die englische Sprache
Andreas Roth
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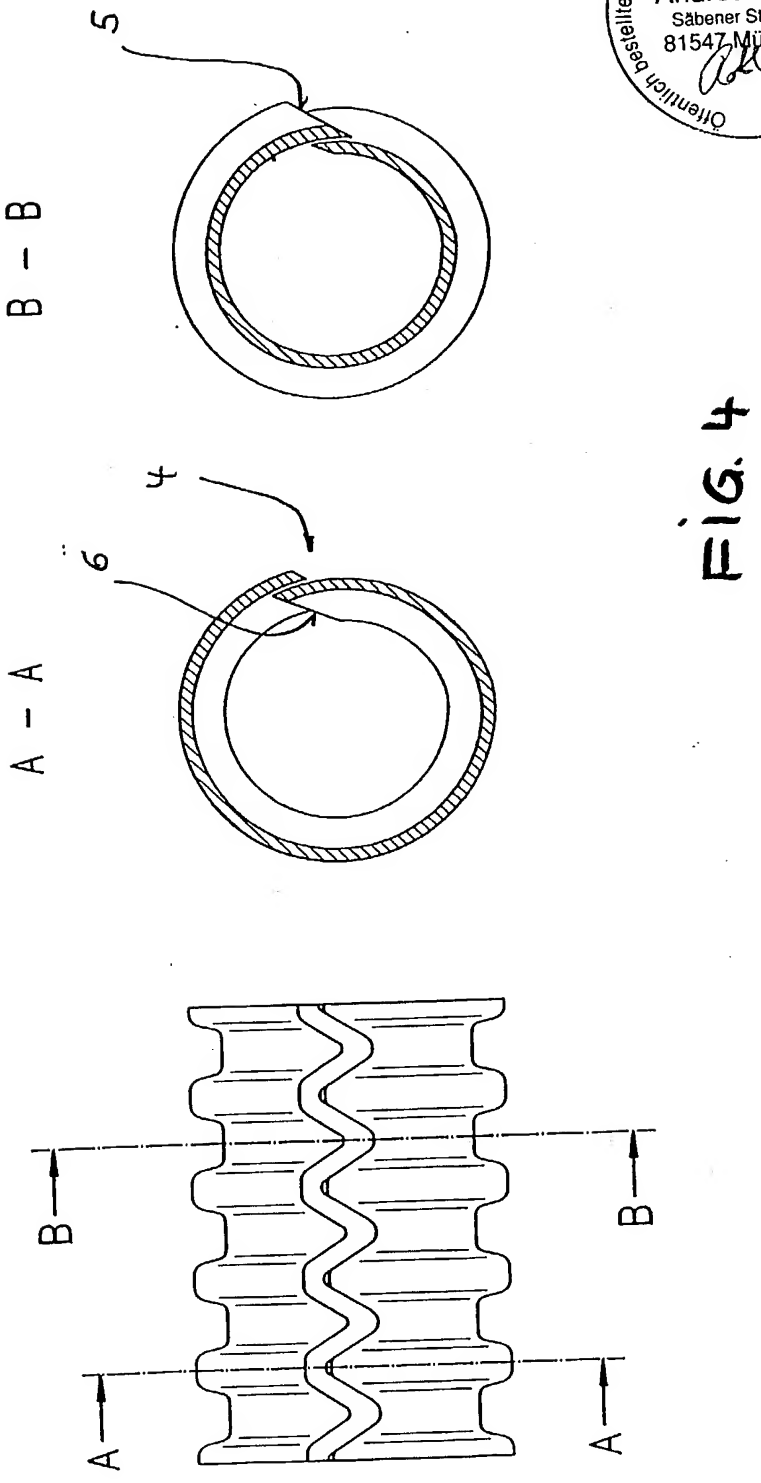

FIG. 4

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Öffentlich bestellter und beeidigter Übersetzer für die englische Sprache
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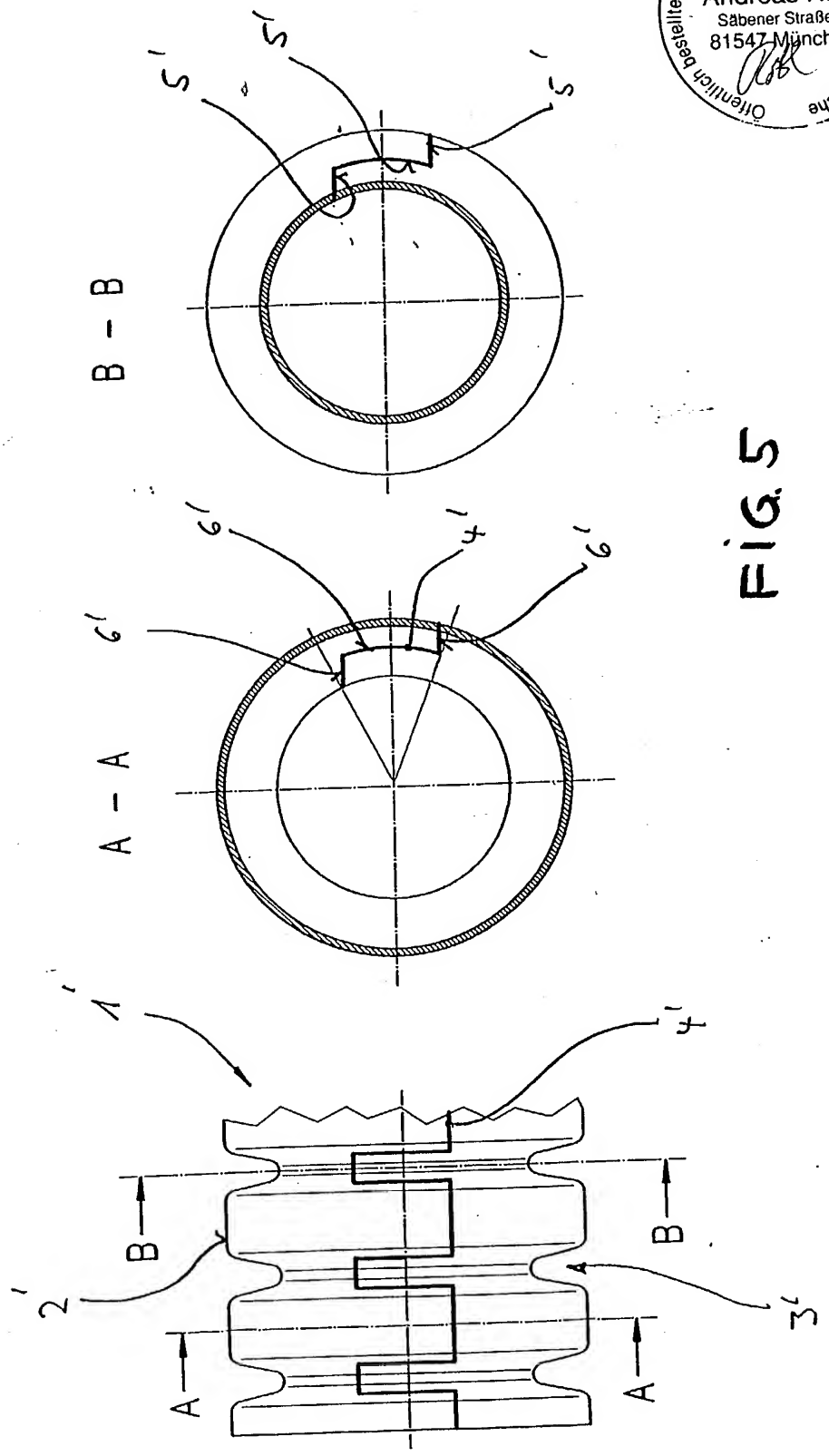

FIG 5

10/018945

Von bestellter und beeidigter Übersetzer für die englische Sprache
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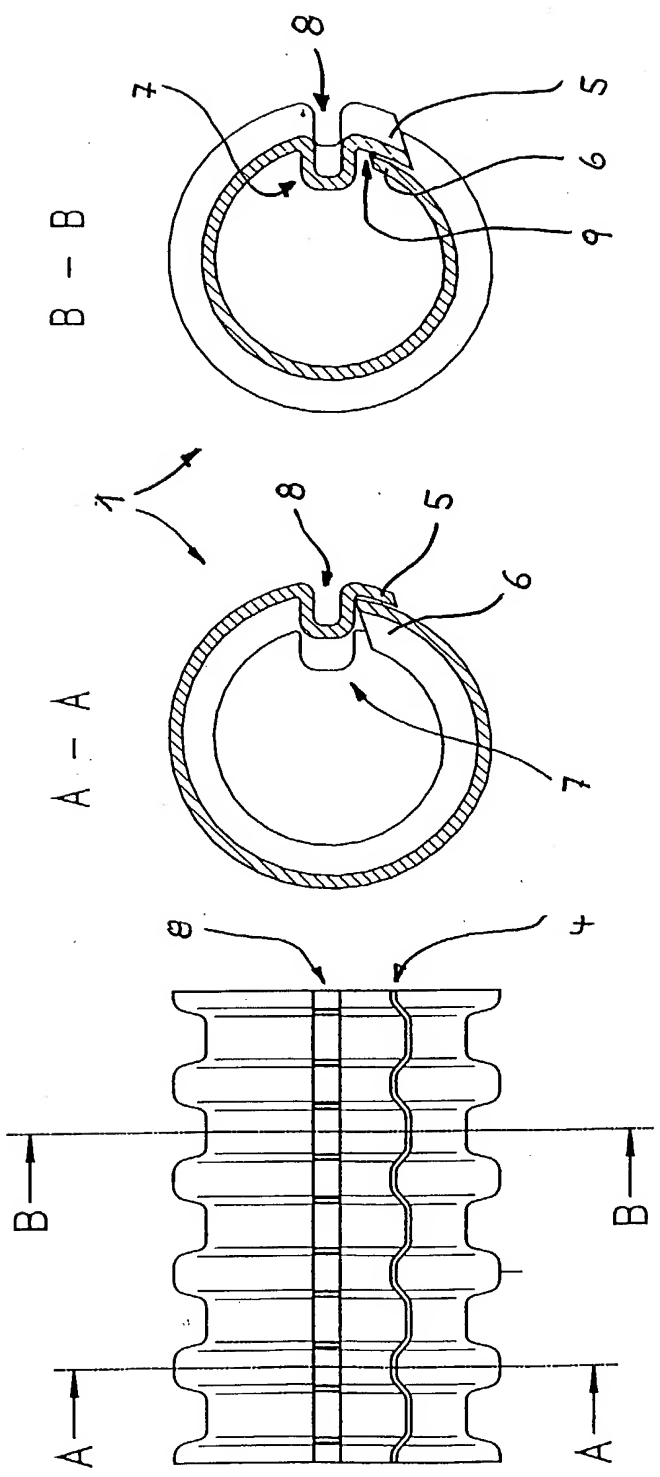

FIG. 6

10018945.082602

PATENT APPLICATION
DOCKET NO.: 52790-00005
Pat 2029-24-US

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **METHOD FOR PRODUCING A CORRUGATED TUBE HAVING A SLITTED OPENING THAT EXTENDS ALONG A GENERATING LINE**, the specification of which: (mark only one)

_X_	(a)	is attached hereto.
_	(b)	was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable)
_	(c)	was filed as PCT International Application No._____ on _____ and was amended on _____ (if applicable).
__	(d)	was filed on ___ as Application Serial No. ___ and was issued a Notice of Allowance on ____.
__	(e)	was filed on ___ and bearing attorney docket number ____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application

2029/24-US

[redacted]

on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
199 27 958.6	Germany	June 18, 1999			X	

I hereby claim the benefit under 35 U.S.C. § 119(e)/120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
PCT/EP00/05557	June 16, 2000	

I hereby appoint:

60

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27.02.2002
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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PAT 2029/24-US

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